

**REMARKS**

At the outset, the Examiner is thanked for the thorough review and consideration of the pending application. The Office Action dated January 14, 2010 has been received and its contents carefully reviewed.

Claim 9 has been amended. Claims 1-8 and 17-21 have been withdrawn from consideration as the result of the earlier restriction requirement. No new matter has been added. Claims 9-11 and 13-14 remain pending in this application. Applicant respectfully requests favorable reconsideration in view of the remarks presented herein below.

Claims 9-11 and 13-14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Maeda et al.(US 2001/0029054) in view of Kim et al.(US 6,091,466) and Sai et al.(JP 2000-165002); further in view of Ishikura et al.(US 6,219,125). Applicant respectfully traverses the rejections as being based upon references that neither teach nor suggest the combination of features recited by independent claim 9, as amended, and hence dependent claims 10, 11, 13 and 14.

With respect to independent claim 9, as amended, Applicant respectfully submits that none of Maeda et al., Kim et al., Sai et al. and Ishikura et al., individually or in combination, teaches or suggests the claimed combination including at least features of “wherein the first copper compound layer is disposed between the first copper layer and the substrate to increase adhesion between the first copper layer and the substrate, and the second copper compound layer is disposed between the second copper layer and the ohmic contact layer to prevent a chemical reaction between the second copper layer and the silicon component of the ohmic contact layer” as recited by independent claim 9.

On page 3 of the Action, the Examiner allegedly asserts:

“Maeda et al.(figure 6) discloses a manufacturing method of an array substrate for a liquid crystal display device, comprising: forming a first copper compound layer (1a; at least paragraphs 0046 and 0080) directly on a substrate; forming a first copper layer (1b) directly on the first copper compound layer; ... ; forming a second copper compound layer (6a; at least paragraph 0081) directly on the ohmic contact layer; forming a second copper layer (6b) on the second copper compound layer directly on the ohmic contact layer; ... .”

In addition, on pages 4-5 of the Action, the Examiner allegedly asserts:

“Maeda et al. is silent regarding forming the first and second copper compound layers including nitrogen and Ishikura et al. teaches the first and second copper compound layers (11) including nitrogen. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the copper compound layers as taught by Ishikura et al. in order to prevent oxidation at the surfaces of the metal layers. In addition, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the method as taught by Ishikura et al. since it was known in the art that such methods are common method to form the copper compound layers.”

Applicant respectfully disagree. Maeda et al. discloses:

“in case of using a low resistance line material (such as A1) for a metal thin film material of the gate line 21 and the source line 22, an oxide layer will be formed between the part comprising the gate line 21 or the source line 22, and the pixel electrode 11 electrically connected therewith. The oxide layer causes high contact resistance at each of the contact part of the gate line 21, and the pixel electrode 11 or the contact part of the source line 22, and the pixel electrode 11. There arises a display defect.” (paragraph 0011)

That is, in Maeda et al., *not* the first layers (1a, 6a), which are allegedly considered as the first and second copper compound layers of claim 9, *but* the second layers (1b, 6b), which are

allegedly considered as the first and second copper layers in claim 9, include nitrogen in order to prevent oxidation at the surfaces of the metal layers. Therefore, in Maeda et al., the second layer (1b) including nitrogen is not disposed between the first layer (1a) and the substrate, and the second layer (6b) including nitrogen is not disposed between the first layer (6a) and the ohmic contact layer. Accordingly, even though Ishikura et al. teaches the adhesive layer (11) including nitrogen, Maeda et al. and Ishikura et al., individually or in combination, fail to teach or suggest the features of “wherein the first copper compound layer is disposed between the first copper layer and the substrate to increase adhesion between the first copper layer and the substrate, and the second copper compound layer is disposed between the second copper layer and the ohmic contact layer to prevent a chemical reaction between the second copper layer and the silicon component of the ohmic contact layer” as recited by independent claim 9, as amended.

Moreover, Applicant respectfully submits that Kim et al. and Sai et al., individually or in combination, cannot remedy the deficiencies of Maeda et al. and Ishikura et al..

Therefore, none of Maeda et al., Kim et al., Sai et al. and Ishikura et al., individually or in combination, teaches or suggests the claimed combination including at least features of “wherein the first copper compound layer is disposed between the first copper layer and the substrate to increase adhesion between the first copper layer and the substrate, and the second copper compound layer is disposed between the second copper layer and the ohmic contact layer to prevent a chemical reaction between the second copper layer and the silicon component of the ohmic contact layer” as recited by independent claim 9, as amended.

Accordingly, claim 9 and its dependent claims 10, 11, 13 and 14 are allowable over the cited references.

Application No.: 10/705,914  
Amendment dated April 13, 2010  
Response to Office Action dated January 14, 2010

Docket No.: 8733.894.00

Applicant believes the foregoing amendments and remarks place the application in condition for allowance and early, favorable action is respectfully solicited.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at (202) 496-7500 to discuss the steps necessary for placing the application in condition for allowance. All correspondence should continue to be sent to the below-listed address.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911.

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Respectfully submitted,

By: /Valerie P. Hayes/

Valerie P. Hayes

Registration No.: 53,005

McKENNA LONG & ALDRIDGE LLP

1900 K Street, N.W.

Washington, DC 20006

(202) 496-7500

Attorneys for Applicant